AMENDMENT TO THE CLAIMS

This listing of claims replaces all previous listings of claims in this application.

1. (ORIGINAL) A method of controlling or modeling the process of densifying at least one porous substrate with pyrolytic carbon by chemical vapor infiltration, the process comprising: placing a load comprising one or more porous substrates to be densified in an oven; heating the substrate(s); admitting a reaction gas into the oven, the reaction gas containing at least one carbon-precursor hydrocarbon; adjusting the pressure in the oven so as to enable the gas to diffuse within the pores of the heated substrate(s) so as to form a deposit of pyrolytic carbon therein; and extracting effluent gas from the oven via an extraction pipe connected to an outlet from the oven;

the method being characterized by measuring the content in the effluent gas of at least one compound selected from allene, propine, and benzene; and, as a function of the measured content, by controlling the process by adjusting at least one parameter selected from: the flow rate of the reaction gas admitted into the oven, the flow rate of at least one component of the gas admitted into the oven, the transit time of the gas through the oven, the temperature to which the substrate(s) is/are heated, and the pressure that exists inside the oven.

2. (ORIGINAL) The method according to claim 1, characterized in that at least one parameter is adjusted so as to maintain the measured content at a value that is substantially constant.

3. (ORIGINAL) A method according to claim 1 or claim 2, characterized in that the content is measured in a duct in parallel with the extraction pipe.

4. (PREVIOUSLY PRESENTED) A method according to claim 1, characterized in that the content is measured by gas chromatography.

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5. (PREVIOUSLY PRESENTED) A method according to claim 1, characterized in that the method is controlled by adjusting the flow rate of the reaction gas, or the flow rate of a component of the reaction gas as a function of the measured allene and/or propine content.

6. (PREVIOUSLY PRESENTED) A method according to claim 1, characterized in that the method is controlled by adjusting the temperature to which the substrate(s) is/are heated as a function of the measured benzene content.

7. (PREVIOUSLY PRESENTED) A method according to claim 1, characterized in that the reaction gas comprises at least one component selected from alkanes, alkynes, and alkenes.

8. (PREVIOUSLY PRESENTED) A method according to claim 1, characterized in that the reaction gas comprises a precursor which is selected from propane, butane, and ethane and which is diluted in methane.

9. (PREVIOUSLY PRESENTED) A method according to claim 1, characterized in that the selected parameter is adjusted within a predetermined range of values.

10. (PREVIOUSLY PRESENTED) A method according to claim 9, characterized in that the end of the densification process is detected by it becoming impossible to control the variation in the measured content by adjusting the selected parameter.

11. (PREVIOUSLY PRESENTED) A method according to claim 1, characterized in that the variation in the or each adjusted parameter is stored so as to constitute a model that is reproducible during a subsequent process of densifying a load of the same type.

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12. (PREVIOUSLY PRESENTED) A method according to claim 11, characterized in that the end of the densification process is detected by it becoming impossible to control the variation in the measured content by adjusting the selected parameter and that the duration of the densification process is also stored.

13. (PREVIOUSLY PRESENTED) A method according to claim 3, characterized in that the content is measured by gas chromatography.

14. (PREVIOUSLY PRESENTED) A method according to claim 13, characterized in that the method is controlled by adjusting the flow rate of the reaction gas, or the flow rate of a component of the reaction gas as a function of the measured allene and/or propine content.

15. (PREVIOUSLY PRESENTED) A method according to claim 13, characterized in that the method is controlled by adjusting the temperature to which the substrate(s) is/are heated as a function of the measured benzene content.

16. (PREVIOUSLY PRESENTED) A method according to claim 15, characterized in that the reaction gas comprises at least one component selected from alkanes, alkynes, and alkenes.

17. (PREVIOUSLY PRESENTED) A method according to claim 16, characterized in that the reaction gas comprises a precursor which is selected from propane, butane, and ethane and which is diluted in methane.

18. (PREVIOUSLY PRESENTED) A method according to claim 17, characterized in that the selected parameter is adjusted within a predetermined range of values.

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19. (PREVIOUSLY PRESENTED) A method according to claim 18, characterized in that the end of the densification process is detected by it becoming impossible to control the variation in the measured content by adjusting the selected parameter.

20. (PREVIOUSLY PRESENTED) A method according to claim 19, characterized in that the variation in the or each adjusted parameter is stored so as to constitute a model that is reproducible during a subsequent process of densifying a load of the same type.

21. (NEW) A method of controlling or modeling the process of densifying at least one porous substrate with pyrolytic carbon by chemical vapor infiltration, the process comprising: placing a load comprising one or more porous substrates to be densified in an oven; heating the substrate(s); admitting a reaction gas into the oven, the reaction gas containing at least one carbon-precursor hydrocarbon; adjusting the pressure in the oven so as to enable the gas to diffuse within the pores of the heated substrate(s) so as to form a deposit of pyrolytic carbon therein; and extracting effluent gas from the oven via an extraction pipe connected to an outlet from the oven;

the method being characterized by measuring the content in the effluent gas of at least one compound selected from allene, propine, and benzene; and, as a function of the measured content, by controlling the process by adjusting at least one parameter selected from: the flow rate of the reaction gas admitted into the oven, the flow rate of at least one component of the gas admitted into the oven, the transit time of the gas through the oven, the temperature to which the substrate(s) is/are heated, and the pressure that exists inside the oven,

wherein the selected parameter is adjusted within a predetermined range of values, and

wherein the end of the densification process is detected by it becoming impossible to control the variation in the measured content by adjusting the selected parameter.

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